ARIZONA GAME AND FISH DEPARTMENT
HERITAGE DATA MANAGEMENT SYSTEM

Animal Abstract **Element Code:** ARADB0701C
Data Sensitivity: No

CLASSIFICATION, NOMENCLATURE, DESCRIPTION, RANGE

NAME: *Coluber constrictor mormon* (Baird and Girard, 1852)
COMMON NAME: Western Yellow-Bellied Racer; Western Yellowbelly Racer
SYNONYMS: *Coluber mormon* Baird and Girard, 1852
FAMILY: Serpentes:Colubridae

AUTHOR, PLACE OF PUBLICATION: *C. c. mormon* (Baird and Girard, 1852), Proc. Acad. Nat. Sci. Philadelphia, Vol. 6, p. 70.

TYPE LOCALITY: "Valley of the Great Salt Lake, Utah." (Degenhardt et al. 1996).

TYPE SPECIMEN: Holotype: USNM 2012 is a juvenile (male ?). H. Stansbury, date unknown. (Degenhardt et al. 1996).

TAXONOMIC UNIQUENESS: *Coluber constrictor mormon* is one of eleven poorly defined subspecies of the species *constrictor*. Although it has been debated in the past to follow this snake at the subspecific or specific level, we choose to follow Crother et al. (2001) based on their following comments: "Reviewed by Wilson (1978, Cat. Am. Amph. Rept. 218). Fitch et al. (1981, Trans. Kansas Acad. Sci. 84: 196-203) argued for the elevation of *C. c. mormon*. This recommendation was rejected by Greene (1983, J. Herpetol. 18: 210-211). Greene's rejection of *C. mormon* was supported by Corn and Bury (1986, Herpetologica 42: 258-264) who showed that a broad zone of intergradation exists across Colorado and Utah. Collins (1991, Herpetol. Rev. 22: 42-43) re-evaluated *mormon* to specific status, although allopatry was not suitably demonstrated. Anderson (1996, MS thesis, Southern Louisiana Univ.) argued that based on allozyme data *C. c. mormon* cannot be differentiated but that *C. c. paludicola* and *C. c. oaxaca* were diagnosable and should be elevated to species status. We retain *C. c. mormon* and await action on *oaxaca* and *paludicola* until the data are published."

DESCRIPTION: A medium to long, slim snake with total lengths up to 75 in (190.5 cm); Behler and King (1979) report average lengths of 34-77 inches (86.4-196 cm); Stebbins (2003) reports that in the west (ssp. mormon), lengths are usually under 36 in. (91 cm); hatchlings are 8-11 in (20-28 cm) long (CaliforniaHerps.com, 2000-2007). Their coloration is greenish to bluish green brownish, and a ventral color varies from pale cream to pale yellow; adults lack blotching pattern. Juveniles are strongly patterned with 70-85 brown or reddish brown dorsal blotches on a light olive-gray to tan background; smaller blotching of similar coloration is present on the sides. This pattern fades with age and is replaced with the greenish plain pattern of adults. The head is broad and the neck is slender, while the eyes are

large with round pupils. The scales are smooth and in 15-17 rows at midbody (15 rows in front of the vent). The lower preocular is wedged between the upper labials. Each nostril is located between two scales. They usually have 8 upper labials and 85 or more caudals. The anal is divided. (Degenhardt et al. 1996; Stebbins 2003; Brennan and Holycross 2006).

AIDS TO IDENTIFICATION: Young resemble the young of the Gophersnake (*Pituophis melanoleucus*), but have smooth scales and wedged preocular. Racer young also resemble the Nightsnake (*Hypsiglena torquata*), except they have round pupils, and the Nightsnake has vertical pupils. In addition, Kingsnakes and (*Lampropeltis* spp.) and Glossy snakes (*Arizona elegans*) have a single anal plate.

ILLUSTRATIONS:

Color drawing (Stebbins 1985, 2003: plate 36 and 43 respectively).
Color photo (Behler and King 1979: plate 478)
Color photo (Degenhardt et al 1996: plate 82).
Color photos of species (Breck Bartholomew and A.T. Holycross, *in* Reptiles of Arizona http://www.reptilesofaz.com/Snakes-Subpages/h-c-constrictor.html)
Color photo (Brennan and Holycross 2006: p. 115)
Color photos of snake and habitat (CaliforniaHerps.com, 2000-2007)
Color photo (William Bosworth, Utah Division of Wildlife http://dwrcdc.nr.utah.gov/rsgis2/Search/Display.asp?F1Nm=colucons)
Color photos (http://www.wildherps.com/species/C.constrictor.html)
Color photo (Michael Rochford 2005, *in* CNAH http://www.cnah.org/detail.asp?id=60)
Color photo (Karl H. Switak, *in* eNature http://www.enature.com/fieldguides/detail.asp?)

TOTAL RANGE: Southern British Columbia south through southern California to Baja California, east to the Rocky Mountains including southwest Montana, western Wyoming and western parts of Colorado; absent from deserts, and restricted to mountains and river valleys in the arid Southwest. *C. c. mormon* intergrades with subspecies *flaviventris* in eastern Utah and western Colorado (Corn and Bury 1986, *in* NatureServe 2006).

RANGE WITHIN ARIZONA: Historical record for Eagar (ca. 7,000 feet), in Apache County. It is found in neighboring northwestern New Mexico at elevations ranging from 3,800 – 6,500 feet, and may still occur in the vicinity of Eagar or along the Arizona-New Mexico border to the north (Brennan 2006).

SPECIES BIOLOGY AND POPULATION TRENDS

BIOLOGY: *Coluber constrictor mormon* is active in the daylight. It is mainly a ground-dwelling snake, but may climb shrubs and trees where branches are available for support. It is long, slender, agile, and fast moving, using its speed to escape enemies and capture prey. When hunting, they crawl with their head held high off the ground, sometimes

moving it from side to side. Prey are killed by being quickly overcome and captured, crushed with the jaws or trapped under the body, and swallowed alive. When *C. c. mormon* are cornered or captured, the racer usually bites and chews aggressively and may discharge musk and feces. They are nervous and excitable, and generally make poor captives. In captivity, they seldom live more than a few years even when they can be induced to feed. Most individuals will readily cross bodies of water; they swim at the surface with the head well elevated.

They are a diurnal species with body temperatures controlling basking and hunting activities. During the winter they hibernate underground with entrances to these hibernacula either natural or made by other burrowing animals. They are often found at denning sites in large numbers and sometimes with other species. The tendency to return year after year to the same hibernacula is debatable. (Behler and King 1979; Degenhardt et al 1996; CaliforniaHerps.com 2000-2007).

REPRODUCTION: *C. c. mormon* mates from April to late May in most of its range. Eggs are laid between June and August in rotting tree stumps, sawdust piles, under rocks or in small mammal tunnels about 5-7 cm below the surface. Occasionally a number of females deposit their eggs in a communal nest. Clutch sizes are between 3-11(14) eggs, with averages of 3-7 in the west; clutch size is proportional to female size. Eggs are soft and leathery with a rough granular texture, ranging in lengths of 1-1 7/8 inches (25-48 mm). Incubation time averages about 50 days but is inversely correlated with temperature. Young hatch in 6-9 weeks from July to September, and are 8-13 inches long (20-33 cm). They mature in 2-3 years (Behler and King 1979). (Behler and King 1979; Degenhardt et al. 1996; Stebbins 2003).

FOOD HABITS: They depend primarily on eyesight and speed to locate and capture prey during the daytime hunting forays. They are opportunistic, feeding on large insects, frogs, lizards, snakes, small mammals, birds, eggs, and small turtles by swallowing their prey alive. Based on studies conducted by Brown in Utah in 1973(*in* Shewchuk and Austin 2001) and by Shewchuk and Austin in British Columbia, Canada from 1992-1994 (*in* Shewchuk and Austin 2001), the bulk of the diet of *C. c. mormon* is made up of acridid grasshoppers, although a greater proportion of mammals were found in the diet of British Columbia racers as compared to those in Utah (19% vs. 3%). In the British Columbia study, seasons plays a factor of food availability. Adult insects are at a seasonal low in the spring as few insect species overwinter. During spring, mammals may be one of the main food resources for larger racers. As the season progresses, insect numbers increase and racers may switch to this abundant food resource.

HABITAT: It occupies a variety of habitats across its range. In general it is associated with moist, open grassy situations or ecotones between forest and grassland. (Brennan and Holycross 2006). According to Stebbins (1985), "In the West, this snake favors open habitats – meadows, prairies, sagebrush flats, open chaparral, piñon-juniper woodland, and forest glades. Found in both semiarid and moist environments but is absent from extremely dry

areas and usually from high mountains. Often found in grassy places near rocks, logs, and other basking sites sought by lizards, or in the grass of streambanks." CaliforniaHerps.com (2000-2007) reports a preference for open areas with sunny exposure – meadows, grassland, sagebrush flats, brushy chaparral, woodlands, riparian areas such as pond edges, and forest openings.

ELEVATION: Sea level to 7,000 feet (2,134 m) for the species. Elevation for the Historical record for Eagar, Arizona is about 7,000 feet (2134 m). In New Mexico, *Coluber constrictor* ranges from around 3,800-6,500 feet (1160-2000 m) elevation (BISON-M 2007), however, this also includes the range for both subspecies (*C. c. mormon* and *C. c. flaviventris*).

PLANT COMMUNITY: Varied across range, but prefers open grassy situations or ecotones between forest and grassland. The community in which the specimen in Arizona was found is Plains Grassland.

POPULATION TRENDS: Unknown.

SPECIES PROTECTION AND CONSERVATION

ENDANGERED SPECIES ACT STATUS: None
STATE STATUS: None
OTHER STATUS: None

MANAGEMENT FACTORS: Has limited distribution in Arizona, where it occurs on the extreme edge of its range.

PROTECTIVE MEASURES TAKEN:

SUGGESTED PROJECTS: Distribution, habitat, population and life history studies are needed. Also need to identify hibernacula sites and characteristics, dispersal behavior from dens, and foraging habitats.

LAND MANAGEMENT/OWNERSHIP:

SOURCES OF FURTHER INFORMATION

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MAJOR KNOWLEDGEABLE INDIVIDUALS:

ADDITIONAL INFORMATION:

Meaning of the Scientific Name:

Coluber – Latin – coluber snake or serpent.

constrictor – Latin – one that constricts, which is a misnomer because this genus does not

constrict.

mormon – Mormon – "found by Capt. Howard Standbury's party, in the valley of the Great Salt Lake" settled by Mormon religionists.

Revised: 1991-03-22(???)
1997-01-13(SMS)
2007-01-08(TWS)
2007-04-03 (SMS)

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